

Laboratory Flexibility & User Needs

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Laboratory Flexibility vs. Adaptability

- ❑ Flexible Labs
 - ✓ Planning for future growth
 - ✓ Utilities
- ❑ Adaptable Labs
 - ✓ Modifying for future functions & research methods
 - ✓ Incorporating new technologies and new staff



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Architects
Laboratory Planning

Architectural Planning for Flexible/Adaptable Labs

❑ Some Issues:

- Not all Staff Hired yet
- New Research Technologies to be Accommodated, with limited information
- Desire to incorporate future “shell space”
- Balancing capital cost, operating cost, and health & safety



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Architects
Laboratory Planning

Architectural Planning for Flexible/Adaptable Labs (cont'd)

- ❑ Plan and include space for access and repair of equipment
- ❑ Ergonomics



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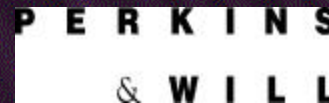
Architects
Laboratory Planning

M/E/P Planning for Flexible/Adaptable Labs

- ❑ Team Approach (knowledgeable users and A/E)
- ❑ Plan Architectural with Mechanical/Electrical System Rqmts. In Mind
 - Chase Sizes and Locations
 - Primary System Capacities & Modularity
 - C.U.B.
 - Containment (Biological or Radioactive)
- ❑ Consider regulatory changes
- ❑ Consider Operational Procedures
 - Animals
 - Social/Environmental
- ❑ "Right-size" Infrastructure and Equipment for Now and Future



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M/E/P Planning for Flexible/Adaptable Labs (cont'd)

- ❑ Review Life Cycle Costs in Making System Decisions
- ❑ Review Part-Load Performance (Partial vs. Full Occupancy)
 - Redundancy
- ❑ Consider Future Conversion of Office to Lab Space, and vice-versa on System design
- ❑ Consider Energy Recovery Methods/Systems
- ❑ More or Less Automation/Monitoring ?
- ❑ Agree on need for Computational Fluid Dynamics (CFD)
- ❑ Include Commissioning !



M/E/P Planning for Flexible/Adaptable Labs (cont'd)

- ❑ Sanitization Required? (determines wall/ceiling finishes also)
- ❑ Standby Power Requirements
- ❑ Uninterruptible Power Supply (UPS)
 - Central or Local ?
- ❑ Security Systems
 - Card Readers
 - Biometric Scanners (hand, retina)
 - CCTV Monitoring
- ❑ Lighting
 - Occupancy Sensors
 - Dual-Illumination (Animal - AAALAC)



Tenant vs. Ownership Issues

❑ Leasing “Pros”

- Saves Capital
- Allows “trial” start-up operation
- Maintenance by others

❑ Leasing “Cons”

- Not in Direct Control of Design or Build Team
- Lease Terms & Conditions (?)

❑ Owning “Pros”

- Direct Control of Design and Build Team
- Depreciation Benefit

❑ Owning “Cons”

- Capital Expenditure
- Maintenance costs & personnel



Labs of the 21st Century and Beyond

- ❑ Environmentally Responsible
- ❑ Cost Effective for now and growth needs
- ❑ Great place to Work
- ❑ Worthwhile Research Results



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